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Office of the Assistant General Counsel
for Technology Transfer and Intellectual Property
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
Attn: Technology Transfer Questions

Subject: Questions Concerning Technology Transfer Practices at DOE Laboratories (Federal Register/Vol. 73, No. 229/ November 26, 2008 /Notices)

Dear Mr. Gottlieb,

Thank you for the opportunity to respond to the questions published in the Federal Register. I am CEO of Ampulse Corporation, an early stage, venture backed company based in Colorado. The founding technologies of Ampulse were developed at Oak Ridge National Laboratory (ORNL) and enhanced by technologies developed at the National Renewable Energy Laboratory (NREL). In the process of verifying and validating these technologies, Ampulse had utilized both a Work for Others (WFO) contracting mechanism at ORNL and is currently funding research at NREL under a Cooperative Research and Development Agreement (CRADA).

In response to Question 1 as posted, I believe it's important to note that given the basic science and fundamental nature of many of the programs conducted at DOE laboratories, many of the technologies require further maturation or development before a commercial partner can evaluate its value or relevance to a specific application, moving from research to development. While a company would typically desire to conduct that validation or development work in the laboratory that discovered the technology, several barriers, both contractual and cultural, exist. While changing cultural mindset isn't a time-practical reality, perhaps DOE can take action to rewrite the "Rules of Engagement" as it relates to commercial partners utilizing various contracting mechanisms at the laboratories.

It is imperative for a commercial entity, particularly when financing is highly dependent upon demonstration of technical milestones, to be able to clearly define the scope of work and measure the progression of the investment through the contracting mechanism. For example, under our CRADA engagement, I would prefer if there was a detailed project management office who could work with Ampulse and the principal investigator at NREL to outline the statement of work, deconstruct each task and define the measure of "success" which could impose structure and discipline as well as "awareness" as to the sponsor's needs. These efforts could result in a

trackable project plan, and perhaps DOE could implement an online, secure project tracking software to enable sponsors to track progress and increase transparency. A project management team within the laboratory can also work with the sponsor to enable flexibility as a project moves forward, as the technology is validated and lessons are learned. Although ultimately higher risk given their nascent stage, technologies with the DOE laboratories have the potential to be truly revolutionary, creating or altering critical sectors in the global economy. To match the higher risk profile, a sponsor who desires to commercialize these technologies must have an ability to systematically retire the risk over time via contractual changes, and a disciplined effort within DOE laboratories to work with sponsors in providing the public resources required to move these technologies into the broader marketplace. It would be a tragedy if these revolutionary inventions were sidelined by controllable project management issues that are more engineering management than true "science".

It is my understanding the DOE contract mechanisms carry a "best efforts" clause, which can be interpreted by the lab or researcher to allow for attempt without resolution. Given the criticality of these milestones for a sponsor company, ambiguity and increased risk of failure to deliver raise barriers to commercialization of the nascent technologies resident in the DOE system. The cultural mismatch that often exists is tied to a sponsor's limited resources and time-constrained goal of securing commercial definition to the technology and a competitive position in the global marketplace. Some researchers within the DOE system are not accustomed to these commercial pressures, nor is there a cognizance of the priorities of a sponsor. Researcher behavior at labs is most often reflective of a career based on grant and programmatic funding cycles, the foundations of DOE programs. This approach has built intellect and expertise for the long-term, which thereby enables commercialization more broadly. I believe, however, that a common set of clear, well identified expectations and deliverables can go a long way to bridging the cultural gap that will continue to exist. Benefits of commercialization of federally funded or enabled intellectual property are returned to the public through products that benefit the public, increased employment, and expansion of the state and federal tax base. These commercialization activities can be pursued without disrupting the core values of publication and sharing of information, research results, materials and know-how. However, discoveries in and of themselves have limited effect beyond meeting narrowly defined research goals -- the real impact for the American people in general comes after several more significant steps and funding are achieved in a drive towards commercialization of the technology. Appreciating this through mechanisms that support project management disciplines and accountability to measurable and timely result generation would better support engagement for commercial and industrial partners within DOE laboratories.

In response to Question 3 regarding U.S. Competitiveness, DOE should consider relaxing its restrictions given the realities of an increasingly global marketplace. Particularly in the field of renewable energy, often early market adoption is outside the United States where foreign government incentive programs enable commercialization at higher than competitive price points due to subsidies. Early market validation is critical in more widespread development, which will bring down costs and enable the technology to compete more effectively with incumbent technologies over the long-term. Considering this, DOE should not seek to impede a licensee's growth with the concern that it is at the expense of U.S. jobs. In reality, while foreign markets may be early adopters, most start-up enterprises see the United States as its ultimate market, with the goal of establishing sales and marketing as well as manufacturing efforts here. If DOE could

demonstrate flexibility in its policies recognizing the critical juncture in commercialization (early OUS adoption and validation) the long-term goal of catalyzing and sustaining the American economy with globally competitive technologies developed in our laboratories can be realized. Specifically, I would suggest DOE consider contracting and licensing mechanisms that enable O.U.S. transfer of technologies with the use of waivers to restrict in select cases rather than enforcing tight restrictions which can be an impediment to engagement by a commercial entity.

The vast physical and intellectual assets of the DOE system are one of our nation's best kept secrets; utilized properly, they could greatly enhance U.S. competitiveness and begin to address some of the nation's most critical problems in energy, health and security. It is our hope that Ampulse will become a successful case study for the DOE, thereby attracting future entrepreneurs and investors to the laboratories to commercialize technologies to the benefit of the greater public good. It is my firm belief that engagement by venture capital and other sources of private funding is required to move technology from the laboratories into the marketplace. Therefore, by lowering barriers to entry by systematically approaching commercial partners via more structured and disciplined business development and project management efforts, increasing the accountability within a laboratory and its management, and sharing in the performance risk by DOE, many more technologies will cross the translational chasm and reach the American public, enhancing U.S. competitiveness in the global economy.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Hane". The signature is fluid and cursive, with a large initial "S" and "H".

Steve Hane

Chief Executive Officer
Ampulse Corporation